

## CLAIMS:

1. A method of relating one or more trigger actions with a multimedia signal (101), the method comprising the steps of
  - providing at least one trigger time point ( $T_n$ ;  $T_{n+1}$ ) and for each trigger time point ( $T_n$ ;  $T_{n+1}$ ) providing at least one representation of least one associated trigger action (105),  
5 where each trigger time point ( $T_n$ ;  $T_{n+1}$ ) indicates a time point of the multimedia signal (101) for which the at least one associated trigger action is to be available during playback of the multimedia signal (101), and
  - for each given trigger time point ( $T_n$ ;  $T_{n+1}$ ) deriving a fingerprint (102) on the basis of a segment of the multimedia signal (101), where the segment of the multimedia signal  
10 (101) is unambiguously related with the given trigger time point ( $T_n$ ;  $T_{n+1}$ ).
2. A method according to claim 1, characterized in that the method further comprises for each obtained trigger time point ( $T_n$ ;  $T_{n+1}$ ), storing the derived fingerprint (102) and the at least one representation of the at least one associated trigger action (105) in a first  
15 database (203).
3. A method according to claims 1, 2, characterized in that the one or more derived fingerprints (102) and/or the at least one representation of at least one associated trigger action (105) for the multimedia signal (101) is transmitted to a playback-device (300)  
20 via the Internet or in a side-channel of a broadcast channel or via some other channel or means.
4. A method according to claims 1 to 3, characterized in that the segment of the multimedia signal (101) is unambiguously related with the given trigger time point ( $T_n$ ;  $T_{n+1}$ )  
25 according to:
  - the segment of the multimedia signal (101) ending substantially at the given trigger time point ( $T_n$ ;  $T_{n+1}$ ),
  - the segment of the multimedia signal (101) starting substantially at the given trigger time point ( $T_n$ ;  $T_{n+1}$ ),

- the segment of the multimedia signal (101) starting or ending at a predetermined distance before or after the given trigger time point ( $T_n$ ;  $T_{n+1}$ ), or
- the given trigger time point ( $T_n$ ;  $T_{n+1}$ ) being at a predetermined time point between a start and an end of the segment of the multimedia signal (101).

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5. A method of detecting one or more trigger actions in a multimedia signal (101), the method comprising the steps of:

- generating a fingerprint stream (104) on the basis of the multimedia signal (101),
- comparing a segment of the fingerprint stream (104) with one or more fingerprints (102) stored in a second database (203') in order to determine if a match exists or not between the segment and a fingerprint (102) in the second database (203'), the second database (203') further comprising for each stored fingerprint (102) at least one representation of at least one associated action (105), and
- if a match exists retrieving the at least one representation of the at least one associated action (105) associated with the matching fingerprint (102).

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6. A method according to claim 5, characterized in that said method further comprises the step of: executing the at least one associated action (105) associated with the matching fingerprint (102) at an appropriate trigger time point ( $T_n$ ;  $T_{n+1}$ ).

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7. A method according to claim 6, characterized in that the appropriate trigger time point ( $T_n$ ;  $T_{n+1}$ ) is given by an unambiguously relation with a segment of a multimedia signal (101) used during generation of the matching fingerprint (102).

25 8. A method according to claims 1 to 4 or claims 5 to 7, characterized in that said multimedia signal (101) is an audio signal, a video signal or a combined audio/video signal.

9. A method according to claims 1 to 4 or claims 5 to 8, characterized in that said at least one associated trigger action (105) is selected from the group of:

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- retrieving and displaying additional information on a display,
- retrieving and playing additional information via a speaker,
- playing another multimedia signal instead of said multimedia signal (101) for a predetermined or variable period of time,
- stopping/pausing, e.g. temporarily, display/play,

- executing other control commands, and/or
- preparing the system for user inputs.

10. A method according to claims 1 to 4 or claims 5 to 9, characterized in that the  
5 derived fingerprint (102) and/or the fingerprint (102) in the second database (203') is an audio and/or video fingerprint (102).

11. A multimedia device (200) for relating one or more trigger actions with a multimedia signal (101), the device comprising  
10 - means (202; 204) for providing at least one trigger time point ( $T_n$ ;  $T_{n+1}$ ) and for each trigger time point ( $T_n$ ;  $T_{n+1}$ ) providing at least one representation of least one associated trigger action (105), where each trigger time point ( $T_n$ ;  $T_{n+1}$ ) indicates a time point of the multimedia signal (101) for which the at least one associated trigger action is to be available during playback of the multimedia signal (101), and  
15 - a fingerprint generator (202) adapted to for each given trigger time point ( $T_n$ ;  $T_{n+1}$ ) deriving a fingerprint (102) on the basis of a segment of the multimedia signal (101), where the segment of the multimedia signal (101) is unambiguously related with the given trigger time point ( $T_n$ ;  $T_{n+1}$ ).

20 12. A device according to claim 11, characterized in that the device further comprises a first database (203) having stored the derived fingerprint (102) and the at least one representation of the at least one associated trigger action (105) for each obtained trigger time point ( $T_n$ ;  $T_{n+1}$ ).

25 13. A device according to claims 11, 12, characterized in that the device further comprises a transmitter (204) for transmitting the one or more derived fingerprints (102) and/or the at least one representation of at least one associated trigger action (105) for the multimedia signal (101) to a playback-device (300) via the Internet or in a side-channel of a broadcast channel or via some other channel or means.

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14. A device according to claims 11 to 13, characterized in that the segment of the multimedia signal (101) is unambiguously related with the given trigger time point ( $T_n$ ;  $T_{n+1}$ ) according to:

- the segment of the multimedia signal (101) ending substantially at the given trigger time point ( $T_n$ ;  $T_{n+1}$ ),
- the segment of the multimedia signal (101) starting substantially at the given trigger time point ( $T_n$ ;  $T_{n+1}$ ),
- 5    - the segment of the multimedia signal (101) starting or ending at a predetermined distance before or after the given trigger time point ( $T_n$ ;  $T_{n+1}$ ), or
- the given trigger time point ( $T_n$ ;  $T_{n+1}$ ) being at a predetermined time point between a start and an end of the segment of the multimedia signal (101).

10    15.           A audio and/or video playback device (300) for detecting one or more trigger actions in a multimedia signal (101) comprising:

- means (302) for generating a fingerprint stream (104) on the basis of the multimedia signal (101),
- means (302) for comparing a segment of the fingerprint stream (104) with one or  
15    more fingerprints (102) stored in a second database (203') in order to determine if a match exists or not between the segment and a fingerprint (102) in the second database (203'), the second database (203') further comprising for each stored fingerprint (102) at least one representation of at least one associated action (105),  
and
- 20    - means (302) for, if a match exists, retrieving the at least one representation of the at least one associated action (105) associated with the matching fingerprint (102).

16.           A device according to claim 15, characterized in that said device further comprises: means (303) for executing the at least one associated action (105) associated with  
25    the matching fingerprint (102) at an appropriate trigger time point ( $T_n$ ;  $T_{n+1}$ ).

17.           A device according to claim 16, characterized in that the appropriate trigger time point ( $T_n$ ;  $T_{n+1}$ ) is given by an unambiguously relation with a segment of a multimedia signal (101) used during generation of the matching fingerprint (102).

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18.           A device according to claims 11 to 14 or claims 15 to 17, characterized in that said multimedia signal (101) is an audio signal, a video signal or a combined audio/video signal.

19. A device according to claims 11 to 14 or claims 15 to 18, characterized in that said at least one associated trigger action (105) is selected from the group of:
- retrieving and displaying additional information on a display,
  - retrieving and playing additional information via a speaker,
  - 5 - playing another multimedia signal instead of said multimedia signal (101) for a predetermined or variable period of time,
  - stopping/pausing, e.g. temporarily, display/play,
  - executing other control commands, and/or
  - prepairing the system for user inputs.
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20. A device according to claims 11 to 14 or claims 15 to 19, characterized in that the derived fingerprint (102) and/or the fingerprint (102) in the second database (203') is an audio and/or video fingerprint (102).
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21. A computer readable medium having stored thereon instructions for causing one or more processing units to execute the method according to any one of claims 1 to 4 or any one of claims 5 to 10.